

# ICT in Schools: Looking back – Looking forward

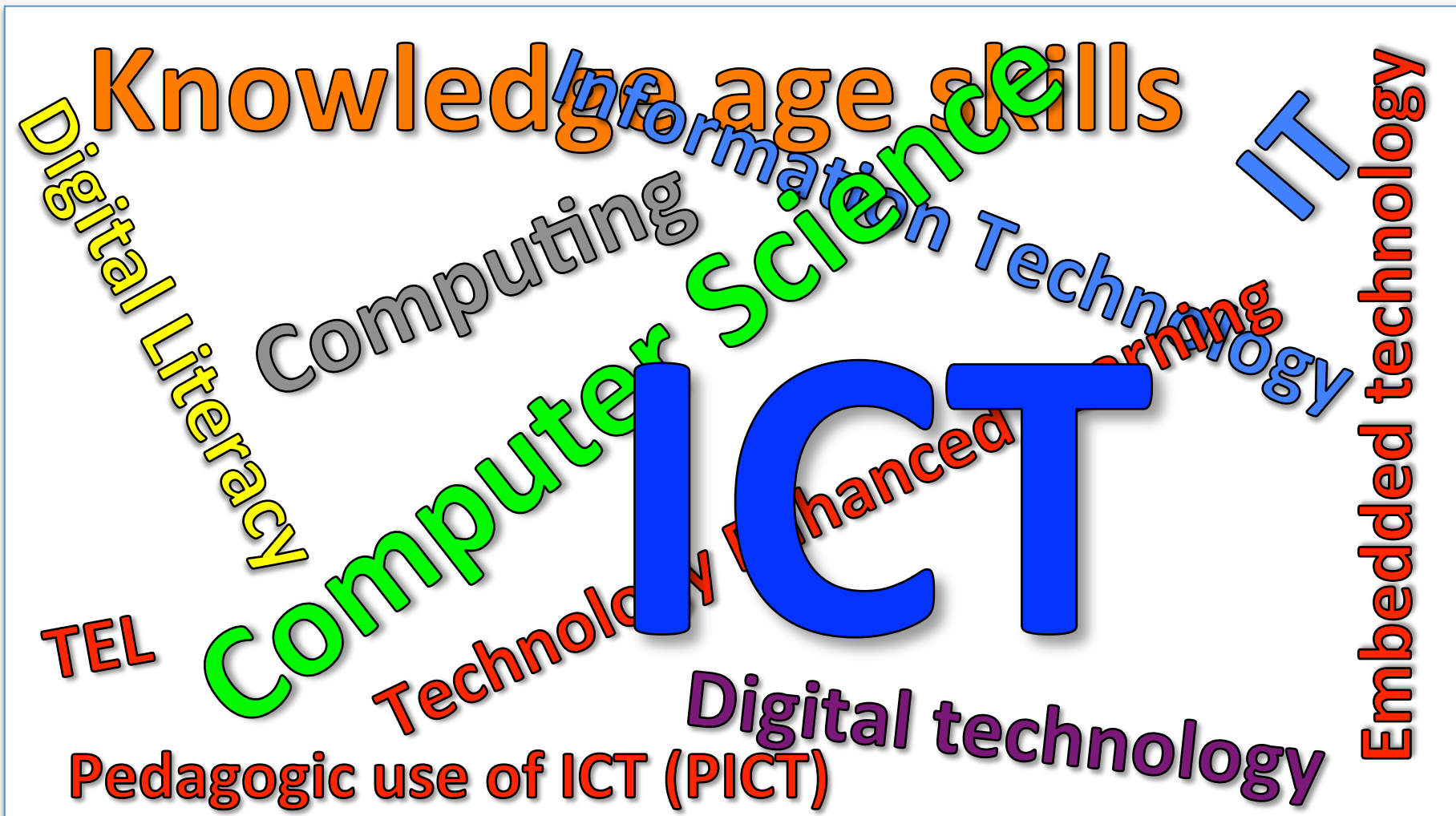
**Peter Twining** (@PeterT)

Professor of Education (Futures), The Open University

Lancaster University, 9<sup>th</sup> March 2016



# Confusion re terminology



**NP<sup>3</sup>**

Computing

**Computer Science**

**Information Technology (IT)**

**Digital Literacy**

**Pedagogic use of ICT (PICT)**

**Embedded Technology**

**Technology Enhanced Learning (TEL)**

**ICT ≈ Digital technology**

# Descriptions precede explanations, but ...



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**NP<sup>3</sup>**

# Descriptions precede explanations, but ...

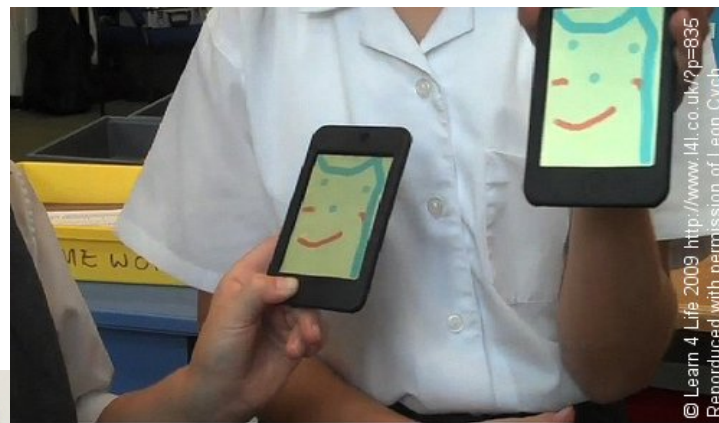


**NP<sup>3</sup>**

# Descriptions precede explanations, but ...



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# NP<sup>3</sup>

# Impact?

What impact does ICT have on ...

**the curriculum?**  
(What we teach)

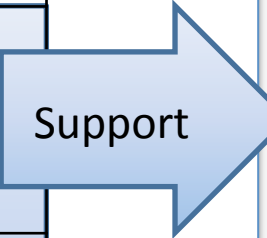
**pedagogy?**  
(How we teach)

Is ICT essential?



**Twining, P.** (2014). Unpacking ICT. In: Cremin, T. & Arthur, J. (Eds.)  
*The handbook of teaching in the primary school*. 3<sup>rd</sup> Edition. London: Routledge, pp. 514-526.

# How do you describe PICT & its impacts

		What impact does ICT have on ...		
		the curriculum? (What we teach)	pedagogy? (How we teach)	
Is ICT essential?	No	Fundamentally unchanged	Increased efficiency and/or effectiveness	Support 
	Yes			



# How do you describe PICT & its impacts

		What impact does ICT have on ...		
		the curriculum? (What we teach)	pedagogy? (How we teach)	
Is ICT essential?	No	Fundamentally unchanged	Increased efficiency and/or effectiveness	Support
	Yes	Curriculum and/or pedagogy are <b>different</b> , but these changes <i>could</i> realistically take place <b>without</b> ICT		Extend

# How do you describe PICT & its impacts

		What impact does ICT have on ...		
		the curriculum? (What we teach)	pedagogy? (How we teach)	
Is ICT essential?	No	Fundamentally unchanged	Increased efficiency and/or effectiveness	Support
		Curriculum and/or pedagogy are <b>different</b> , but these changes <i>could</i> realistically take place <b>without</b> ICT		Extend
	Yes	Curriculum and/or pedagogy are <b>different</b> , and these changes could <i>only</i> realistically take place <b>with</b> ICT		Transform

# Dimensions as descriptions?

Support

Extend

Transform



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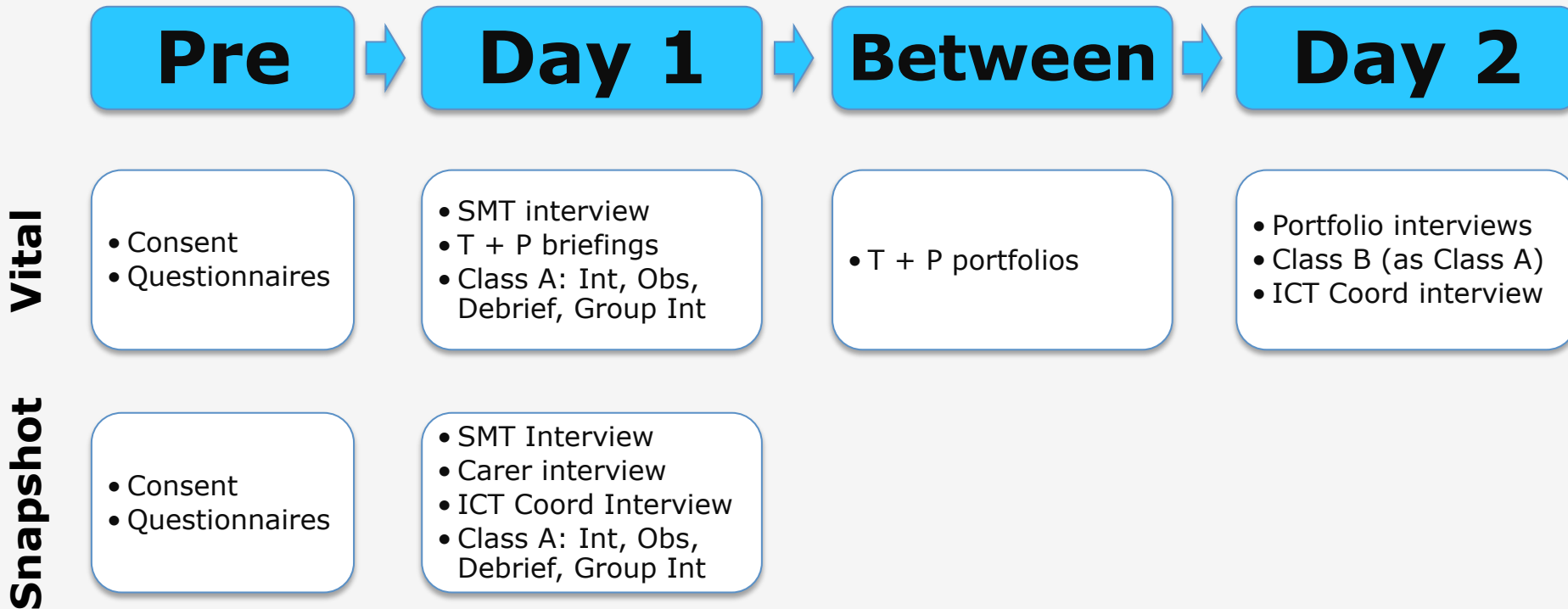
Vital Studies

Snapshot Studies

# Focus, 'Context' & 'Sampling'

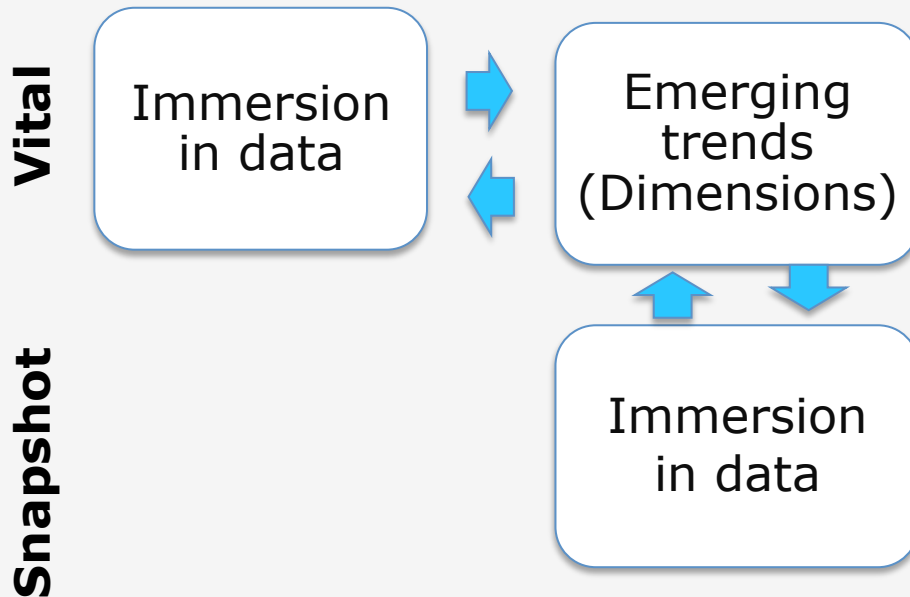
	Focus	'Context'	'Sampling'
Vital	Digital technology strategies	22 Schools England	Schools - Purposive sampling (Patton, 1990)
Snapshot		13 Schools Australia	Participant selection model, (Cohen, Manion, & Morrision, 2000)

# Data collection



# Data analysis

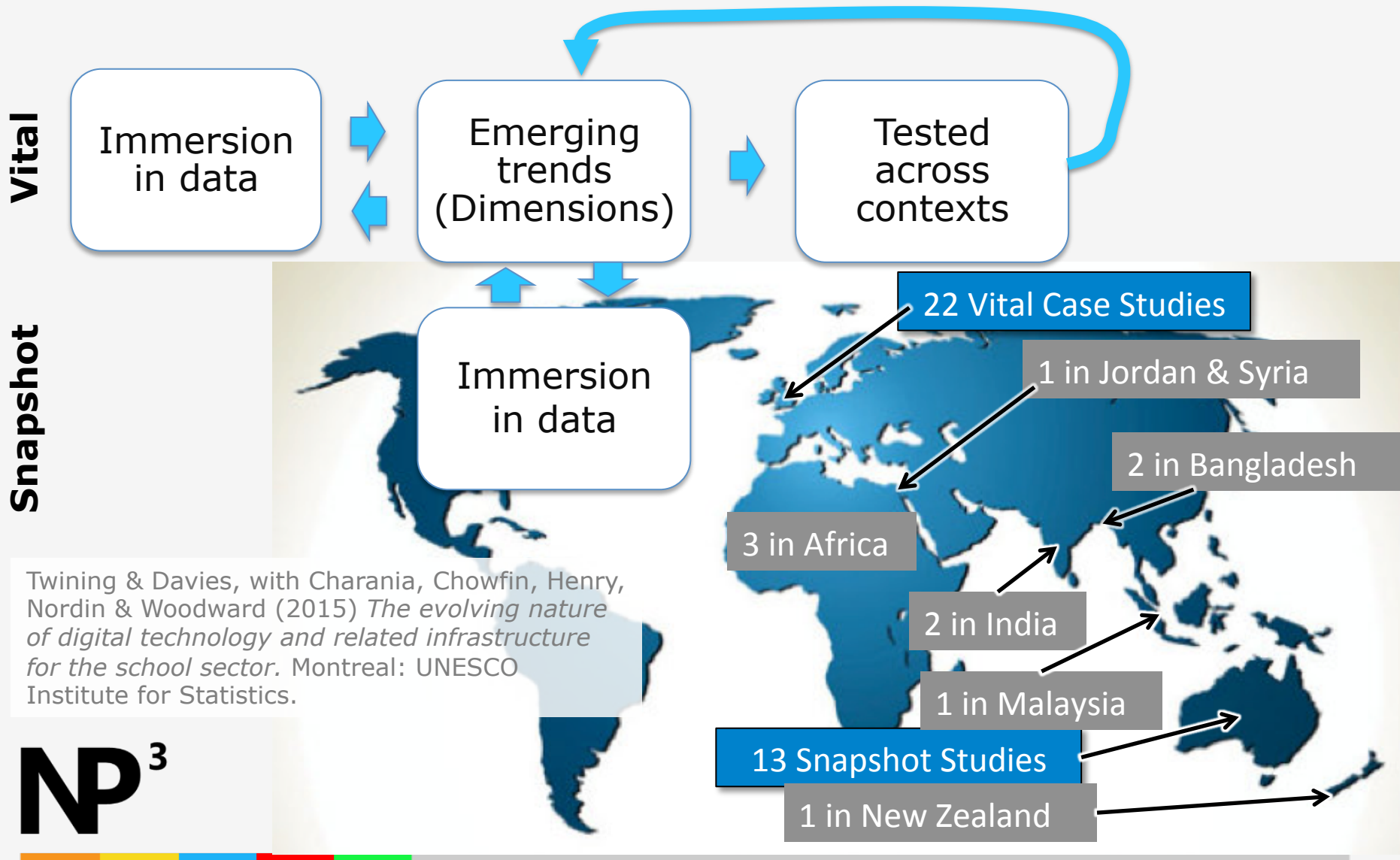
Emergent Themes Analysis (ETA) Wong and Blanford (2002)



# Dimensions

Support	Extend				Transform
Desktop	Laptop	Tablet			Tablet +
'School'	Subsidised			Hybrid	Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open
'Learning technology'	Consumer devices				
'Local' Servers	VLE			Cloud	Cloud +
Internal	External (staff)		External (registered)		Public
ICT teachers	Dedicated technology team		Digital Leaders		Manage YOT
Formal CPD	Informal CPD			Learning organisation	
Traditional	Independent & personalised learning			Pupils teach	
Sage on the stage	Collaborative resource designer & Guide on the side			Co-learner	
Teacher assessment	Reflection			Peer assessment	
Product	Process				
School to home	Hidden	Recognised		Valued	Impacting
None	Technology	Apple pie	21 <sup>st</sup> Century		Educational

# Data analysis



Twining & Davies, with Charania, Chowfin, Henry, Nordin & Woodward (2015) *The evolving nature of digital technology and related infrastructure for the school sector*. Montreal: UNESCO Institute for Statistics.

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# Snapshot Study 1



New state secondary school – Yr8

‘Computer lab’ in every classroom

Keyboards are essential

Moving to eTextbooks (?)

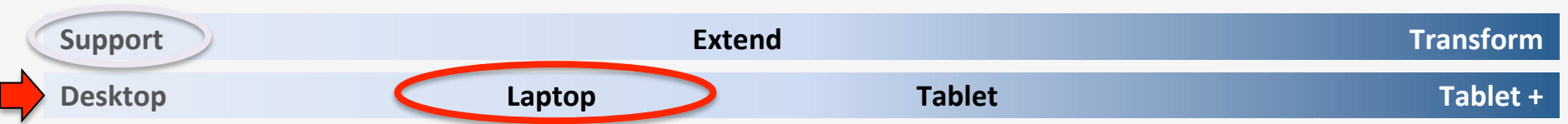


Support

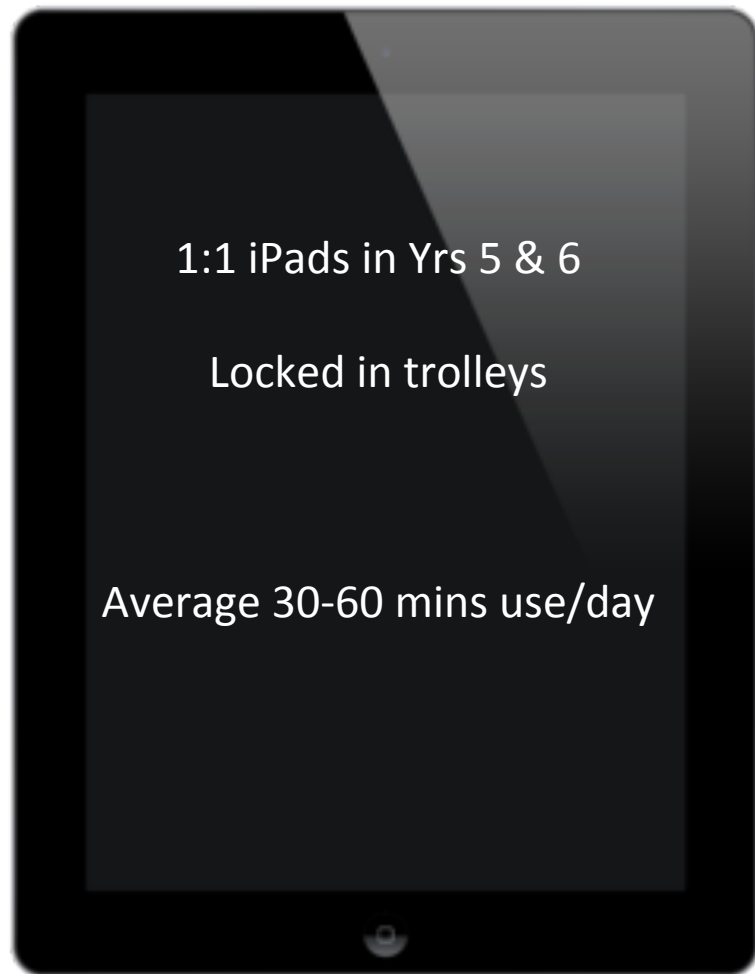
Devices not up to expectations  
⇒ Stick to tried & tested devices

Sustainability a huge challenge

# What device?

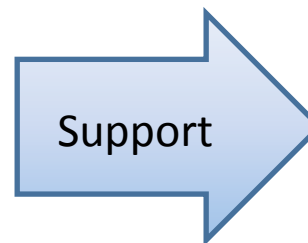


# Case Study 6



Large 3-11 primary school  
Enthusiastic ICT coordinator

Several 1:1 projects since 2008

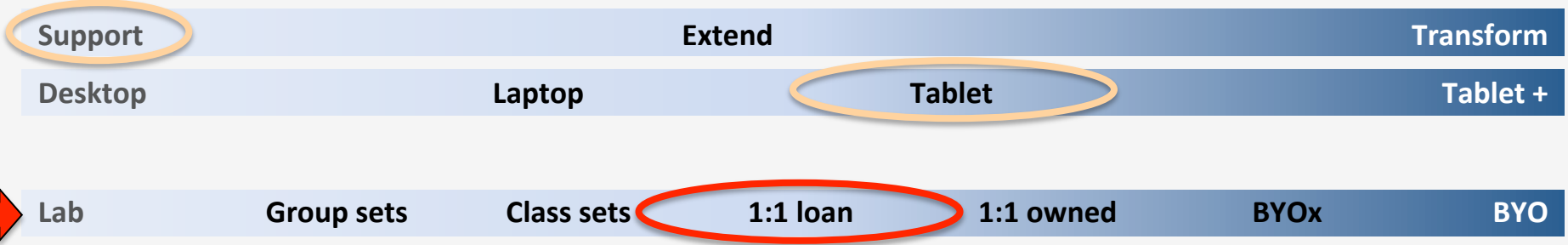


Pupils very good at ICT

Significant positive impact for a  
child on autistic spectrum

Less photocopying

# Provision




# Ownership matters



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<http://edfutures.net>

# Funding (who pays?)



Support	Extend				Transform	
Desktop	Laptop		Tablet			Tablet +
'School'	Subsidised			Hybrid	Home	
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO

# Traditionally

Allowed to be used in school

moodle

WiFi



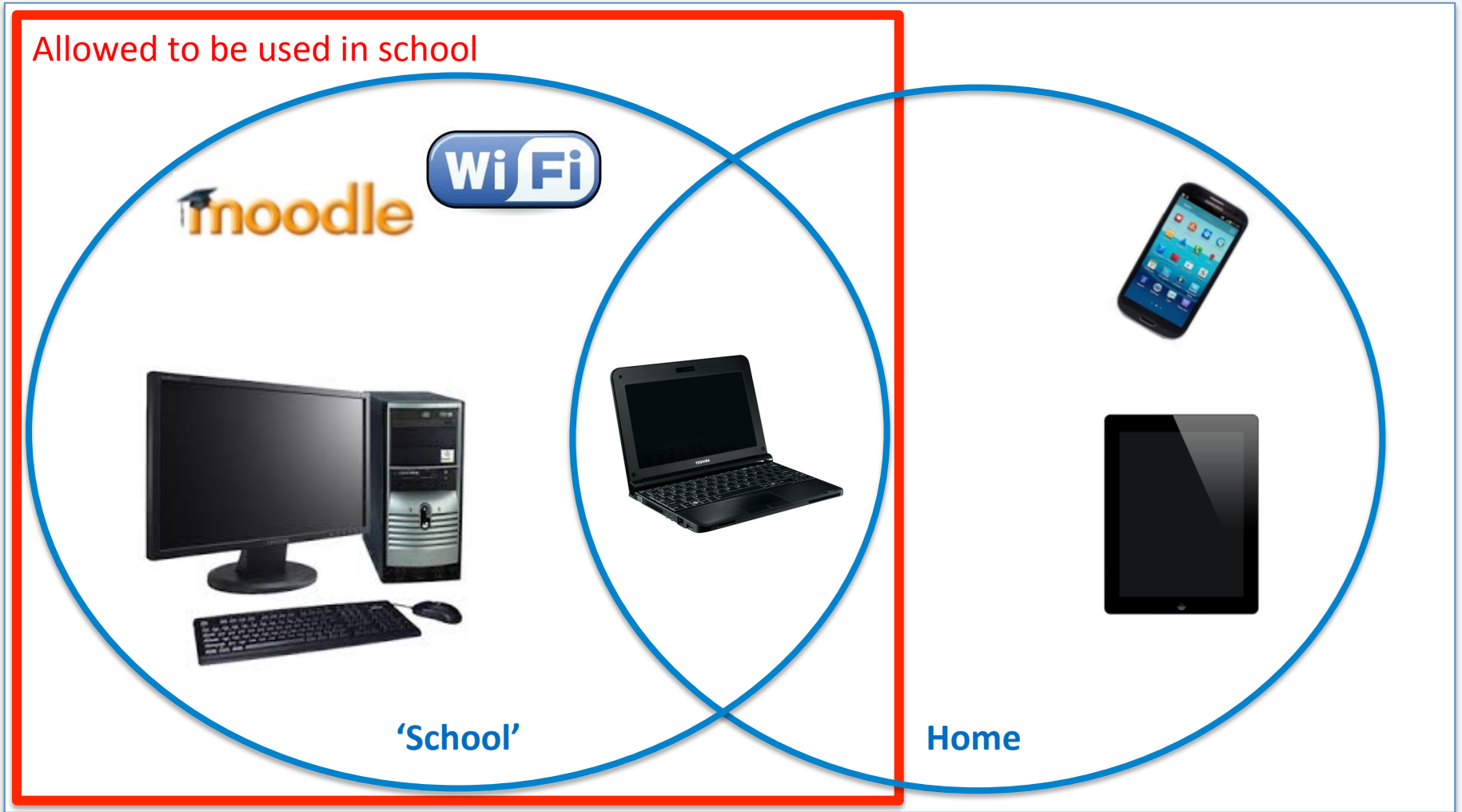
'School'



Home

NP<sup>3</sup>

# 1:1 schemes



**NP<sup>3</sup>**



# BYO

Allowed to be used in school

moodle

WiFi



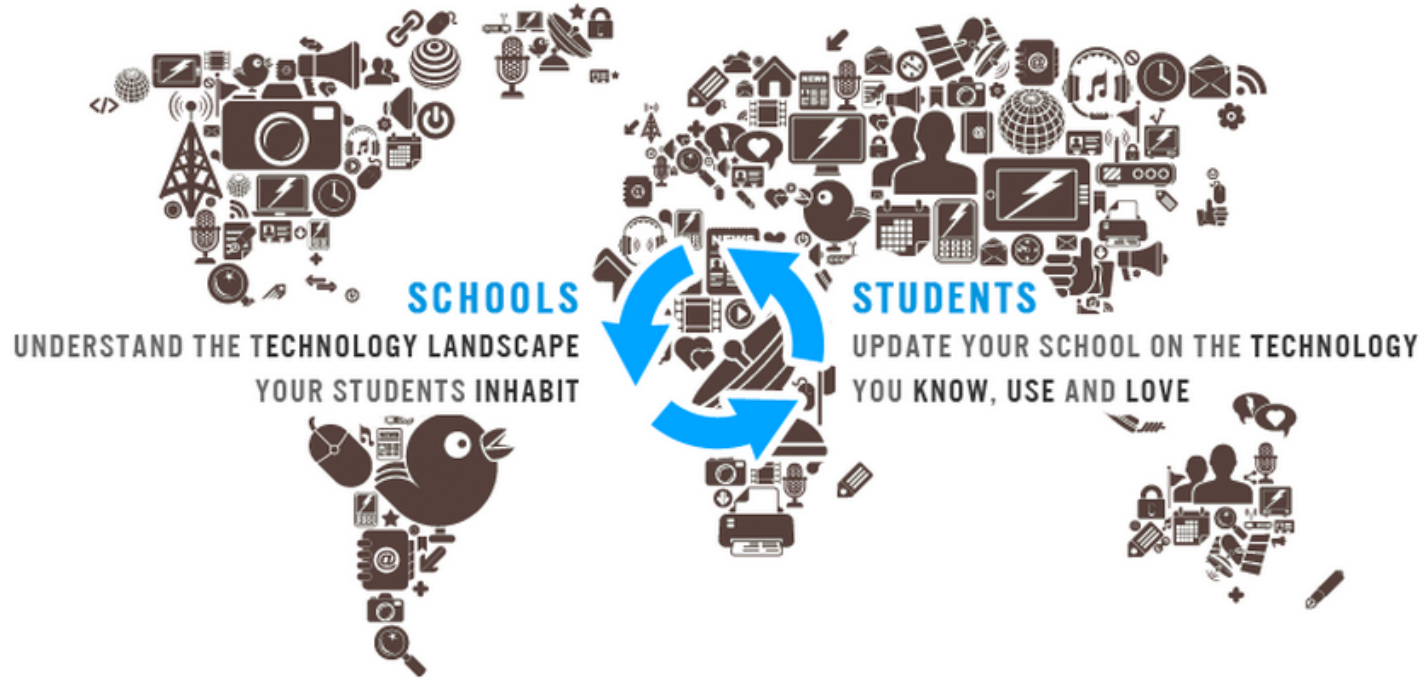
'School'



Home

# NP<sup>3</sup>

# YOUR OWN TECHNOLOGY SURVEY



TRY DEMO >>

“This is amazing love the report format and how quick the survey is”  
Paul Styles, St Helens College

Learn More

Try Demo

# YOUR OWN TECHNOLOGY SURVEY



# www.yots.org.uk




TRY DEMO >>

“This is amazing love the report format and how quick the survey is”  
Paul Styles, St Helens College

Learn More

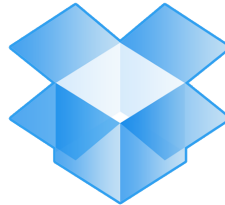
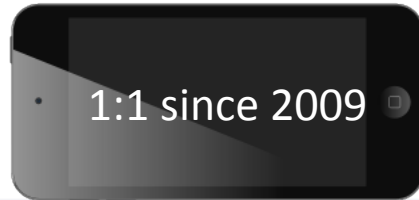
Try Demo

# Funding (who pays?)



Support	Extend				Transform	
Desktop	Laptop		Tablet			Tablet +
'School'	Subsidised			Hybrid	Home	
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO

# Case Study 3



11-16 Academy – new build  
Charismatic head  
Educational vision  
enabled by technology



Significantly improved GCSE  
results since 2009

But ...

'New forms of understanding  
knowledge and learning don't  
quite fit with current  
assessment methods' (Yr11)

# Tech model

Support			Extend			Transform
Desktop		Laptop		Tablet		Tablet +
'School'			Subsidised	Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired		Wireless: closed		Wireless: controlled		Wireless: open
'Learning technology'						Consumer devices
'Local' Servers			VLE		Cloud	Cloud +
Internal		External (staff)		External (registered)		Public

# Teacher role

Support			Extend			Transform
Desktop		Laptop		Tablet		Tablet +
'School'			Subsidised	Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired		Wireless: closed		Wireless: controlled		Wireless: open
'Learning technology'						Consumer devices
'Local' Servers			VLE		Cloud	Cloud +
Internal		External (staff)		External (registered)		Public



# Student role

Support			Extend				Transform
Desktop		Laptop		Tablet			Tablet +
'School'			Subsidised	Hybrid			Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx		BYO
Wired		Wireless: closed		Wireless: controlled			Wireless: open
'Learning technology'							Consumer devices
'Local' Servers			VLE		Cloud		Cloud +
Internal		External (staff)		External (registered)			Public
Traditional			Independent & personalised learning				Pupils teach
Sage on the stage			Collaborative resource designer & Guide on the side				Co-learner

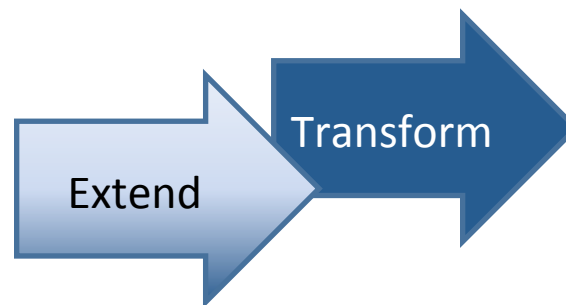


# Case Study 4

# TeachMeet



4-11 primary  
Passionate ICT Coordinator  
& supportive Head Teacher



Increased Digital Leaders' confidence (and status)

Helps ICT Coordinator (and other staff)

Raised profile of school

# NP<sup>3</sup>

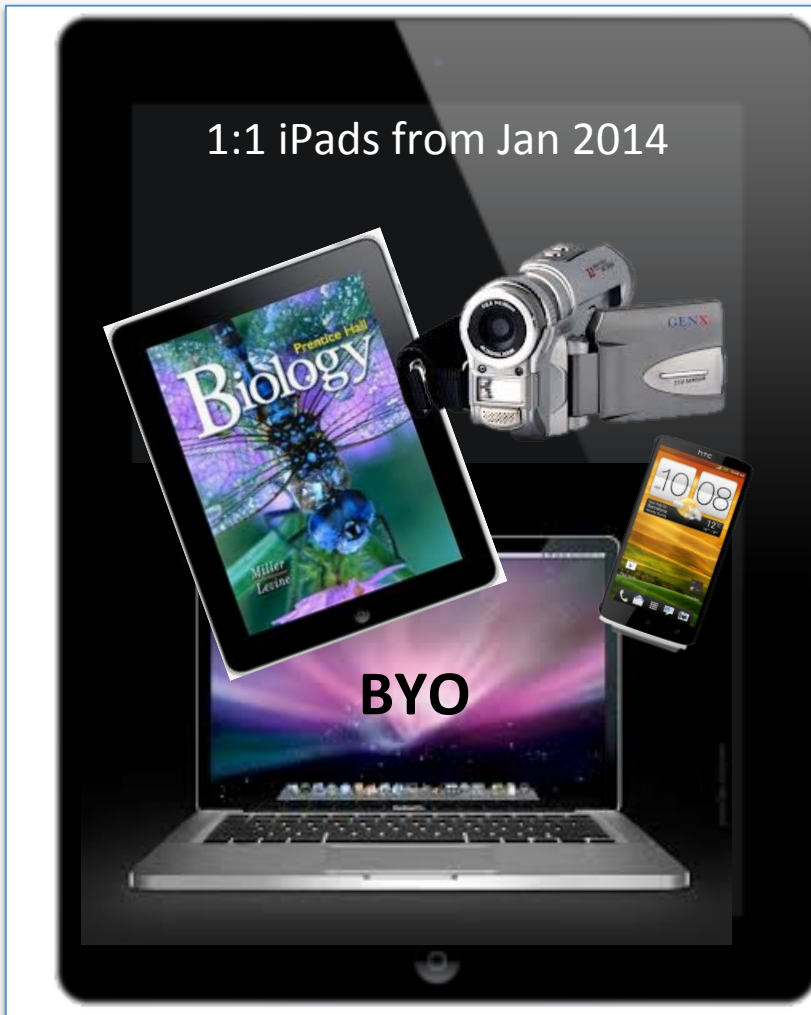
# Professional development

Support	Extend			Transform		
Desktop	Laptop	Tablet		Tablet +		
'School'	Subsidised		Hybrid	Home		
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open	
'Learning technology'					Consumer devices	
'Local' Servers	VLE		Cloud		Cloud +	
Internal	External (staff)		External (registered)		Public	
Formal CPD	Informal CPD			Learning organisation		
Traditional	Independent & personalised learning			Pupils teach		
Sage on the stage	Collaborative resource designer & Guide on the side			Co-learner		

# Tech support

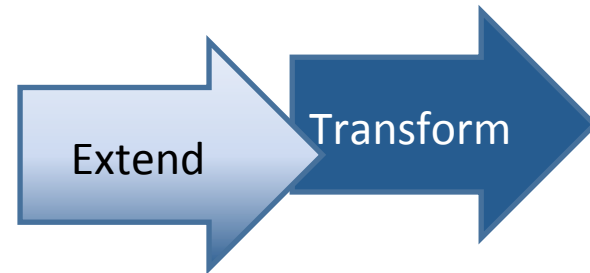
Support	Extend			Transform		
Desktop	Laptop	Tablet		Tablet +		
'School'	Subsidised		Hybrid	Home		
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open	
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'Local' Servers	VLE			Cloud	Cloud +	
Internal	External (staff)		External (registered)		Public	
ICT teachers	Dedicated technology team		Digital Leaders		Manage YOT	
Formal CPD	Informal CPD			Learning organisation		
Traditional	Independent & personalised learning			Pupils teach		
Sage on the stage	Collaborative resource designer & Guide on the side			Co-learner		

# Snapshot Study 3



K-12 Independent Girls School (Yr7 +)

Global citizens (critical thinkers)



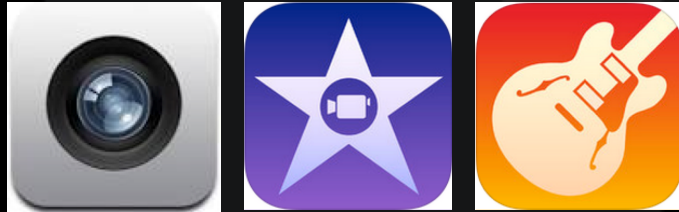
How did that happen?

⇒ From 'Why?' to 'Why not?'

⇒ Trust?

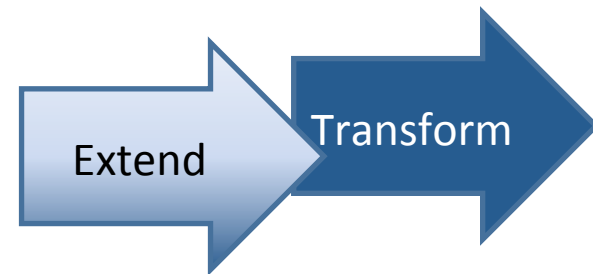
# Snapshot Study 6

10 school iPads +  
BYO iPads (NOT 1:1)  
in Years 3 to 6  
from Jan 2013



K - 6 state school

'literate, creative, culturally aware  
and socially conscious young adults  
and ready global citizens'



Sharing devices

Reflection & Peer review

Media makers

# Assessment

Support	Extend				Transform	
Desktop	Laptop	Tablet			Tablet +	
'School'	Subsidised			Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open	
'Learning technology'						Consumer devices
'Local' Servers	VLE			Cloud		Cloud +
Internal	External (staff)		External (registered)			Public
ICT teachers	Dedicated technology team			Digital Leaders		Manage YOT
Formal CPD	Informal CPD				Learning organisation	
Traditional	Independent & personalised learning					Pupils teach
Sage on the stage	Collaborative resource designer & Guide on the side					Co-learner
Teacher assessment	Reflection				Peer assessment	



# What (curriculum focus)

Support	Extend				Transform	
Desktop	Laptop	Tablet			Tablet +	
'School'	Subsidised			Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open	
'Learning technology'						Consumer devices
'Local' Servers	VLE			Cloud		Cloud +
Internal	External (staff)		External (registered)			Public
ICT teachers	Dedicated technology team		Digital Leaders		Manage YOT	
Formal CPD	Informal CPD				Learning organisation	
Traditional	Independent & personalised learning					Pupils teach
Sage on the stage	Collaborative resource designer & Guide on the side					Co-learner
Teacher assessment	Reflection				Peer assessment	
Product						Process



# Vision

Support	Extend				Transform	
Desktop	Laptop	Tablet			Tablet +	
'School'	Subsidised			Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx	BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open	
'Learning technology'						Consumer devices
'Local' Servers	VLE			Cloud		Cloud +
Internal	External (staff)		External (registered)			Public
ICT teachers	Dedicated technology team		Digital Leaders		Manage YOT	
Formal CPD	Informal CPD				Learning organisation	
Traditional	Independent & personalised learning					Pupils teach
Sage on the stage	Collaborative resource designer & Guide on the side					Co-learner
Teacher assessment	Reflection				Peer assessment	
Product						Process



None	Technology	Apple pie	21 <sup>st</sup> Century	Educational
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# Where are PICT strategies heading?

Support	Extend				Transform
Desktop	Laptop		Tablet		Tablet +
'School'	Subsidised		Hybrid		Home
Lab	Group sets	Class sets	1:1 loan	1:1 owned	BYOx BYO
Wired	Wireless: closed		Wireless: controlled		Wireless: open
'Learning technology'					Consumer devices
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Formal CPD	Informal CPD				Learning organisation
Traditional	Independent & personalised learning				Pupils teach
Sage on the stage	Collaborative resource designer & Guide on the side				Co-learner
Teacher assessment	Reflection				Peer assessment
Product					Process
School to home	Hidden	Recognised		Valued	Impacting
None	Technology	Apple pie	21 <sup>st</sup> Century		Educational

# NP<sup>3</sup>

NEW PURPOSES • NEW PRACTICES • NEW PEDAGOGY

www.np3.org.uk

Support

Desktop

Laptop

'School'

Lab

Group sets

Class sets

Wired

Wireless: closed

'Learning technology'

'Local' Servers

Internal

External (staff)

ICT teachers

Dedicated tech

Formal CPD

Informal

Traditional

Sage on the stage

Teacher assessment

Product

School to home

Hidden

Recognised

Valued

Impacting

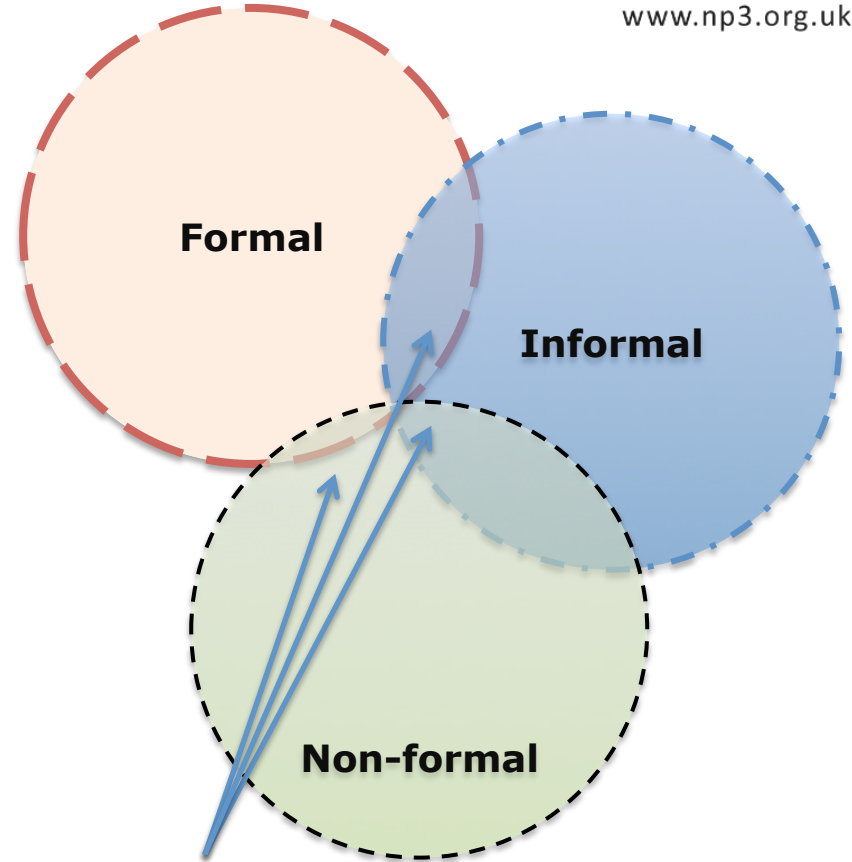
None

Technology

Apple pie

21<sup>st</sup> Century

Educational



Potential 'practice' knowledge overlaps

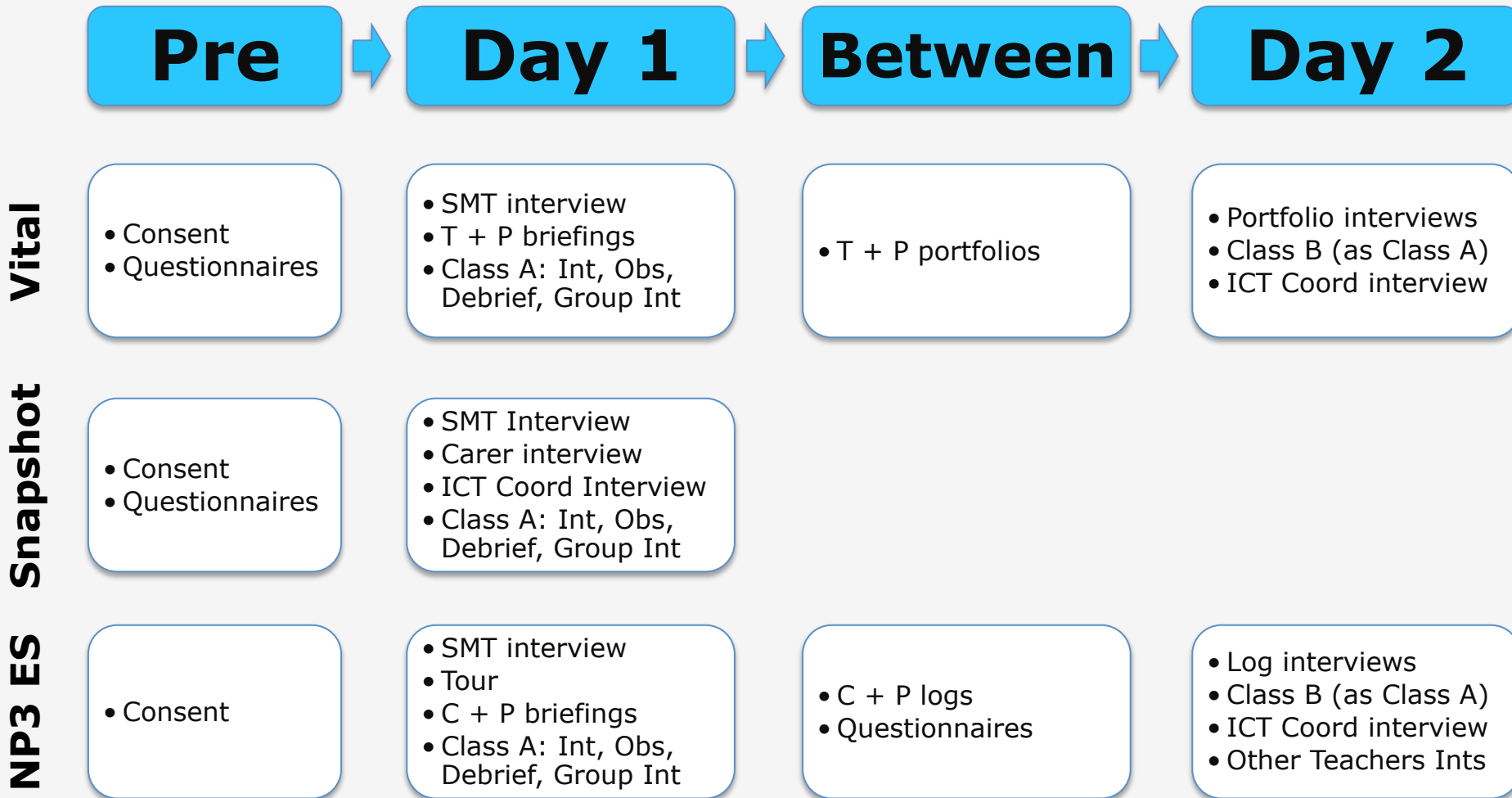
# Focus, 'Context' & 'Sampling'

	Focus	'Context'	'Sampling'
Vital	Digital technology strategies	22 Schools England	Schools - Purposeful sampling (Patton, 1990)
Snapshot		13 Schools Australia	Participant selection model, (Cohen, Manion, & Morrison, 2000)
NP3 ES	Pupils practices Pedagogy	10 Primary UK	



From description to explanation (theory)

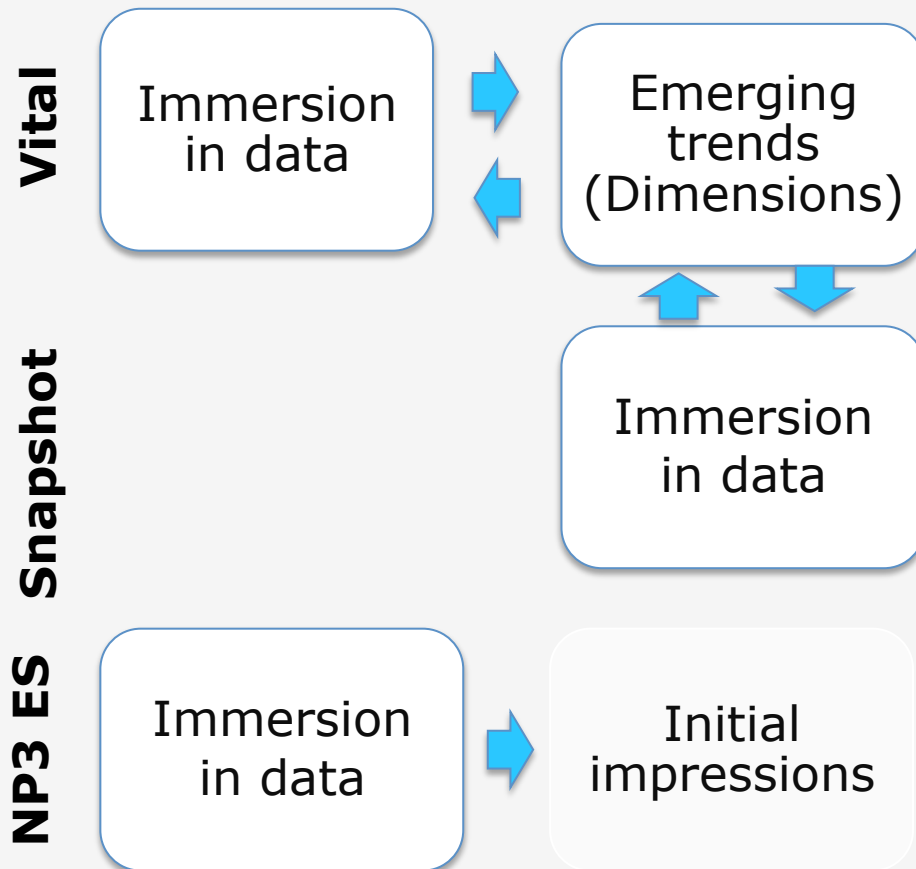
# Data collection



**NP<sup>3</sup>**

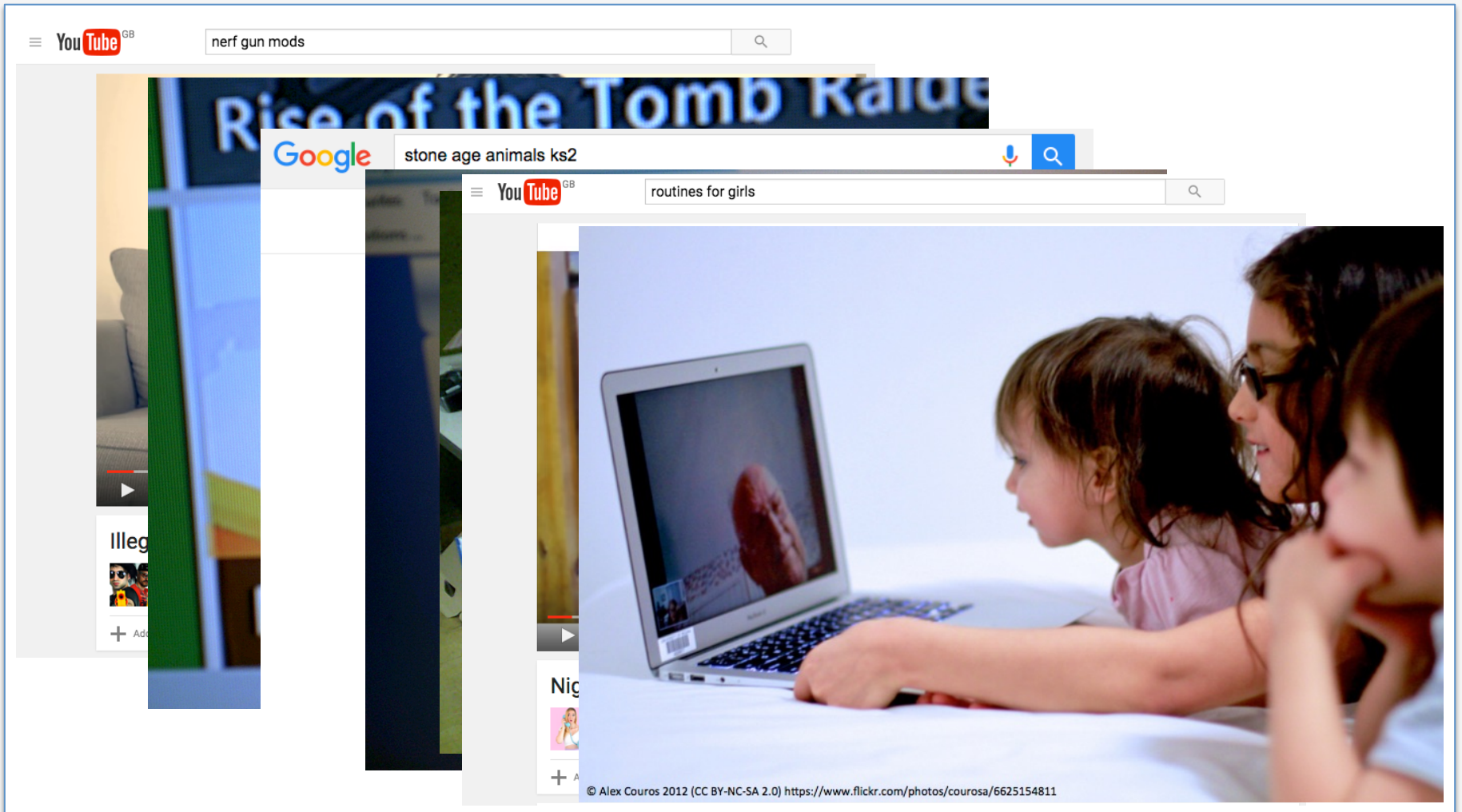
# Data analysis

Emergent Themes Analysis (ETA) Wong and Blanford (2002)



**NP<sup>3</sup>**

# Pupils' 'home' use

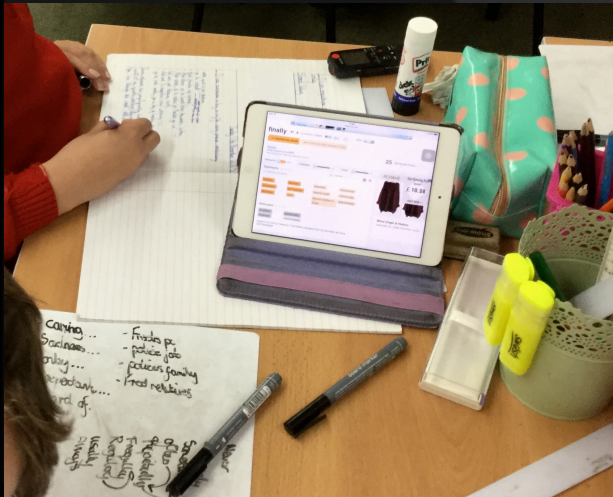


**NP<sup>3</sup>**

# NP<sup>3</sup> Exploratory Study 5

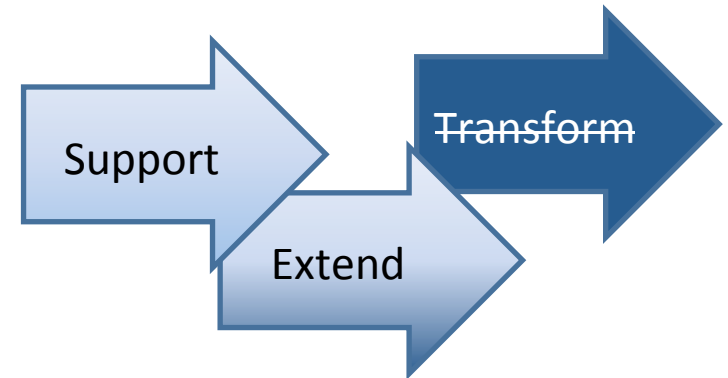
30 iPads per Year group  
(shared between 3 classes) +  
BYO iPad  
since 2012

S'Cool Radio



State junior school (Yrs 3 to 6)

Unite – Inspire - Excel



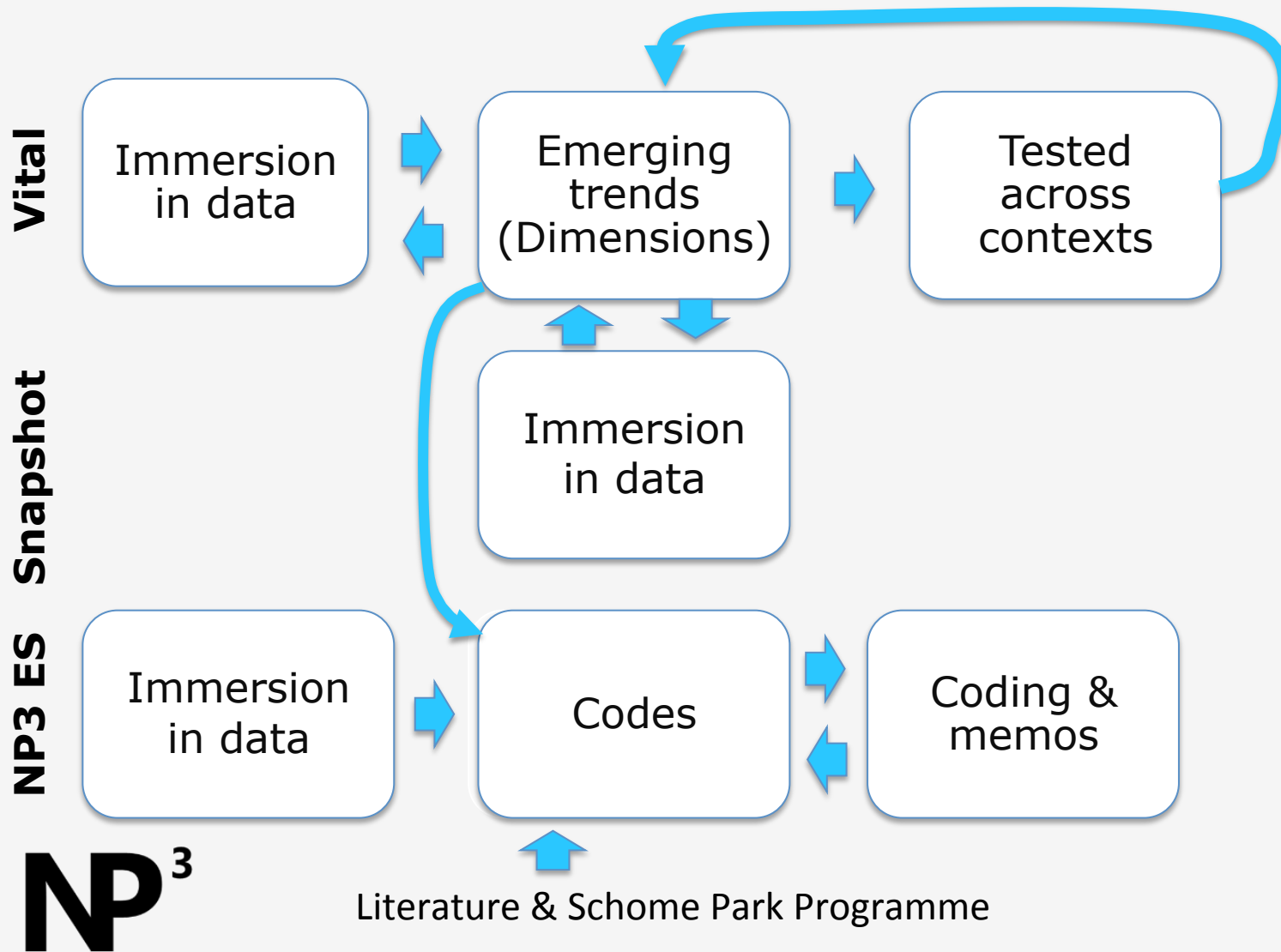
“Scores on doors”

Ofsted paper trail

Staff development - priorities

# NP<sup>3</sup>

# Data analysis



**NP<sup>3</sup>**

Literature & Scheme Park Programme



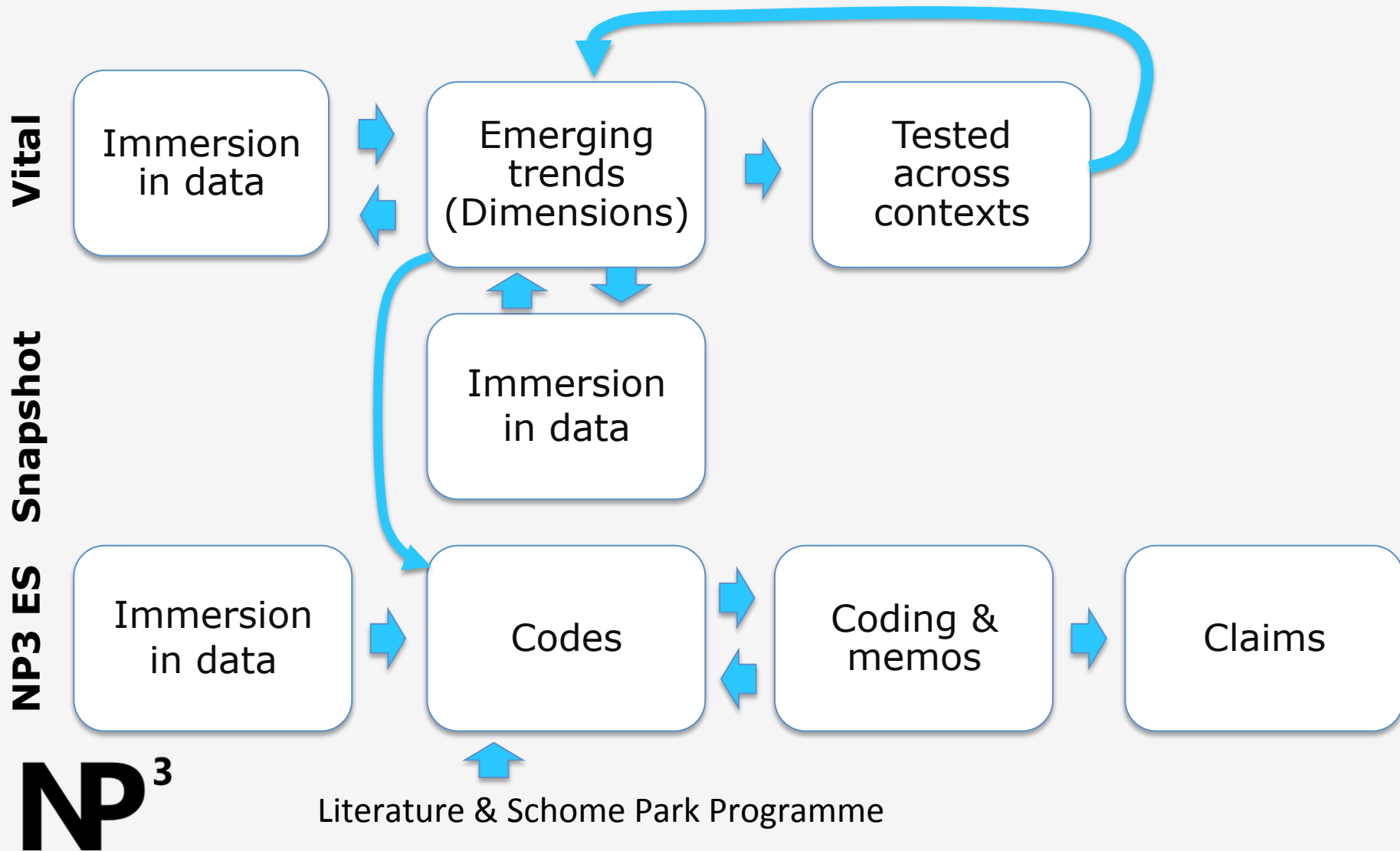
# MAXQDA

The screenshot displays the MAXQDA software interface. At the top, the title bar reads "/Volumes/NP3 MAXQDA2/MAXQDA 12 Files/NP3 ES5 Master.mx12 - MAXQDA 12 (Release 12.1.0)". The interface is divided into several panels:

- Document System:** A tree view on the left showing a hierarchy of documents. The selected document is "NP3 ES5 Day 1 Audio 03 0 to 21 Digital Log briefing 15-11-17".
- Code System:** A list of codes on the left, including Modality, Software, Medium, Resources, Activities, and Rules. The "Rules" category is expanded, showing sub-categories like ..Resistance, ..YouTube, ..Movie, ..Publishing, ..Capture, ..Over, ..Rules, ..Making, and ..Audio.
- Document Browser:** The central panel displays a transcript of an audio recording. The text is color-coded by code. A vertical timeline on the left of the transcript shows the duration of each code segment. The transcript includes dialogue such as "And I'm looking forward to seeing the video [laughter]" and "So he's done a video of his house, so this is my room and de de de then he's come down stairs, this is the lounge and then we're both in there like going like this [demonstrates stretching arms etc]".
- Retrieved Segments:** A panel on the right showing a list of segments retrieved from the document. Each segment is associated with a code and a snippet of text. For example, "11.52C-B2But you can hear him shouting 'You're not putting that on YouTube!' [Laughter]".

# NP<sup>3</sup>

# Interpretation



**NP<sup>3</sup>**

Literature & Scheme Park Programme

# Discussion

<http://edfutures.net>

<http://www.np3.org>

The logo for EdFutures features the text 'EdFutures' in a bold, blue, sans-serif font. Below it, the word 'EdFutures' is repeated in a lighter, semi-transparent font. The text is set against a background of a light-colored, irregular shape that resembles a map of a region, possibly the UK. This shape is filled with a dense, overlapping pattern of ants, some of which are carrying small white particles. The entire logo is centered within a larger, light-colored rectangular frame.

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**NP<sup>3</sup>**

**Peter.Twining@open.ac.uk**